

The WORLD SCANNER REPORT

A Journal of VHF-UHF Scanner Technology & Engineering

ISSN 1061-9240

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\$4.00

**THE YEAR OF THE INTERFACE CONTINUES
HB-232 Release is imminent!**

The soon-to-be famous *HB-232 Scanner/Computer Interface* continues its development and progress out of Beta and into Charlie Testing. All parts are in stock except the printed circuit boards which are assured to be right on schedule for release by the end of July. The only other loose end is the HB-232 Program, but which appears to be right on schedule for August 3rd. So if all continues to go well, we will start shipping HB-232 Kits on or about August 5th. Many of you may have ordered with the understanding that shipment might not be before the end of August. At this writing, I think we will beat that estimate by three weeks. Now THAT is a deal, where in this day and age, estimates usually run the other way.

Speaking of the Charlie Test phase for the HB-232, let me take this opportunity to tell you more about it and what to expect. You see, the formal announcement of the HB-232 won't come until Fall, probably mid-late September. Until then, we will continue to refine and develop the HB-232 Program and Documentation. This means regular changes can be expected, some of which will undoubtedly be due to YOUR input. In a way, you Charlie Testers are guinea pigs for the formal Release Version to come in the Fall. Compensation includes a nice 24% discount off the regular price, as well as the formal Release Version of the Program and Documentation. You'll have had a hand in the development & configuration of the HB-232. Your input will be extremely valuable because until now, the only other input has been from our persnickety, critical, never satisfied Beta Testers.

Don't get me wrong, these guys have been fantastic and indispensable in scraping off the rough edges. But now comes another important phase in the development of the HB-232: actual market testing. You guys are going to be pleased and satisfied with the HB-232 right off, thanks to the efforts of the Beta Testers, but we're depending on YOU to help put the polish and the shine on the first Release product. You can do this by thoroughly testing every aspect of the HB-232 and its Program and then let us know what you like and especially what you don't like or would like to see changed. The Beta Test crew was hand selected for their specialized expertise in critical areas of the Big Picture of the HB-232, but you Charlie Testers are more typical of the HB-232 Market.

There is no requirement that you help us out, of course, but there will be an incentive for those who provide a meaningful report of either a notably positive OR negative slant for our study before the end of August, 1992. At the very least, I will make sure you get at no

extra cost at least one major revision or update to the Program AFTER the Release version, if any are done within the year after purchase. Normally, major revisions or updates are sold for profit, but yours will be free, if downloaded from my BBS, or at a minimal handling charge if you prefer a disk. By the way, all registered Charlie Testers will receive special clearance to a restricted area of my BBS where you'll be able to download Program & documentation revisions, special files, & newly developed scripts for the HB-232. If you contribute a meaningful Report or Evaluation of your impressions of the HB-232 and its Program before the end of August, you'll receive even higher clearance for access to the major revision file areas. All original purchasers of the HB-232 before September 15, 1992, will be automatically registered as Charlie Testers after the first log-in to the *Hertzian Intercept BBS*. Those whose Reports are received before Sept 1, 1992, will be upgraded even higher. Purchasers of the HB-232 after the formal announcement this Fall will not receive special BBS access or entitlements.

There will be a public message & tech support conference established on my BBS for ALL HB-232 Owners, however, and I hope to network this conference to a number of BBS's around the USA and Canada to make access easier and less expensive. The idea here is that as more and more people log onto my BBS, there will be less and less opportunity for others to do so. A way around this is to network the HB-232_C Conference to other BBS's in major areas around the continent. It's a simple matter for network-capable BBS's to do this, so you might ask your favorite local SysOp if he/she would be interested in importing the HB-232_C Conference for you. If interested, please refer them to me at the *Hertzian Intercept BBS*, (619) 578-9247; FidoNet address 1:202/731. The more BBS's to participate, the more benefit to all. The HB-232 has so much latent capability that even we, its developers, don't know all the potential impact of this wonderful addition to the PRO-2004/5/6 family. You'll see what I mean as you become proficient in the use of your HB-232.

You will wish there were ways to communicate or affiliate with other HB-232 Owners, and that's exactly what the fledgling HB-232_C conference will be all about! Not only will it offer tech support to those who need it, but it will be a forum for the exchange of techniques, ideas, scripts and general info about the HB-232 & its Program. I am going to do everything in my power to make this Conference widely available on a network of BBS's in key areas of the continent to make access easier and long distance costs lower. By the way, my standing offer to help you find BBS's in your area is still good. Just provide me with your Area Code and any other Area Codes of interest and I can make you a nice list of BBS's in that region for you to explore.

The HERTZIAN INTERCEPT BBS NOW HAS ITS 1st AFFILIATE

This is a good opportunity to introduce to you, the **Feedhorn BBS**, (818) 907-7906, located in the Los Angeles area: the first to affiliate with my *Hertzian Intercept* BBS. The **Feedhorn's** SysOp, Brian Greer, is an avid scannist, electronics technician and a most amicable fellow. Naturally, the **Feedhorn's** theme is radio with special emphasis on scanners. If my BBS hours are too restrictive for you, or if it's busy when you call, you can log onto the **Feedhorn BBS** and connect with me on two different message areas: **RADIO_TEK** and/or **HB-232_C**. Of course, there will be other message areas on the **Feedhorn** which are not sent to my *Hertzian Intercept* and vice-versa, but you will find the **RADIO_TEK** and **HB-232_C** conferences shared by both BBS's, the contents of which are electronically exchanged each night. This means that if you post a message to me on the **Feedhorn** today, I will see it first thing the following morning. I'll fire off a reply and you'll see it that very day if you check into my *Hertzian Intercept*, or the following day on the **Feedhorn**! This is the concept by which I hope to expand the **HB-232_C** Conference around the continent! All it takes is another BBS in your area to cooperate. The only disadvantage of the networking concept is the time delay since we SysOps exchange our electronic "mail" during the wee hours of the night when long distance rates are at a minimum.

COMPUTER LINKS ESSENTIAL TO FLOW OF HOBBY INFO

Please pardon my apparent departure from the main theme of Scanner Hacking here but this matter of BBS Networking is pertinent, because that's the primary channel for the timely flow of information in our Hobby! Consider how you learn out about scanner hacks? Magazines, newsletters, word of mouth, etc.! More often than not, information from these media is months old by the time you get it! In contrast, I can electronically transmit the entire contents of this issue of the *World Scanner Report* in a matter of seconds! Don't get me wrong here; there's no substitute for the printed word yet, but by golly, neither is there is a substitute for the BBS-link to our Hobby! Information about our Hobby can travel around the world in a matter of a day or two, and the more of us who are linked into this medium, means the more data we can pass along, not only to each other but also to those who don't own or don't want to use computers!! More and more of the data that I am passing to you HERE in the WSR is channeled to me by computer link.

HERTZIAN INTERCEPT BBS NOW HAS A HIGH SPEED MODEM WITH FAX!

We've just acquired a ZyXEL U-1496E Modem with capability of v.32bis/v.42bis and FAX! This means we can match most any data transfer speed from 300 to 16,800-baud as well as send and receive FAX! The "smarts" are in the modem which can detect whether a caller is making a BBS or a

FAX call! Either way, the caller won't see a difference. Now, if you want to save time with an important written message, just prepare a FAX transmittal and send it per your customary procedure to (619) 578-9247 anytime **EXCEPT between 1:30pm-5:30pm, PST**. Why not send us a test FAX message anyway? For those of you ready to upgrade to this fantastic computer communications resource, contact the USA distributor of ZyXEL modems at:

ZERO ONE; 4920 E. La Palma Ave; Anaheim, CA 92807
Voice (714) 693-0808 FAX: (714) 693-0705
BBS: (714) 693-0762

You might be glad you did; I am. For you BBS callers, relax, nothing has changed except that we can go as fast as you now. Or as slow. Our modem will match your speed whatever it may be.

SCANNER FREQUENCY MANAGEMENT - PART 5 by Perry Joseph, DataFile, Inc. Developer of ProScan Frequency Management System

A lot of ground has been covered in our discussion of computerized frequency list management. It's easy to say there are many ways to accomplish the task. In my last article, I promised an easy solution for non-programmers who want to simplify the chore of frequency management. **ProScan**, of course! It's EASY TO USE and costs a lot less than most database management programs. What's better is not having to learn how to program a database!

Before developing **ProScan**, I looked at custom frequency management software in the public domain as well as demo versions from the commercial field. I hoped to find a ready made solution to eliminate reinventing the wheel. Several good programs were available, but none suited my particular needs. Too many menus, too many keys to press, too many commands to remember, & too many crashes.

Software development is my profession and scanning is my hobby. Since I had the tools to build my own, I decided to develop a different approach to frequency management.

ProScan, in its infancy, was minimal, but served my basic needs. It wasn't originally intended for commercial distribution, but I passed out copies of **ProScan** to a few scanner friends. At their urging, I improved it and released **ProScan** as a commercial product.

My primary concern was to keep it simple. I wanted all users to be able to learn how to use it in a short time. More importantly, I wanted frequency data to be available immediately without extra menus and with the fewest keystrokes possible (I'd rather press one key than two).

ProScan is a customized DOS based program which utilizes the **xBase** file format. The main screen offers a view of nineteen frequencies at a time. You scroll through the frequency list by using the Up/Down, Page Up/Page Down

keys or the Ctrl-Page Up/Ctrl-Page Down keys to go to the top and bottom of the file. All data is on-screen with exception of notes. Editing a frequency record is as simple as pressing the Enter key. Entering of notes is only a space bar away. Other on-screen data includes automatic bank numbering, channel number, name, class, type, call sign and an indicator to let you know if there are additional notes. There's an active clock, screen blanking, help screens and more.

One of the most unique features of *ProScan* is its ability to instantly locate a frequency record, appropriately called "*Intelligent Seek*". When the scanner stops on an active frequency, you want the ability to look up the channel number and for a quick reference on who's talking. With *ProScan*, you type in the channel number and press the Enter key, NO MENUS REQUIRED! You can also seek by frequency number or name and you don't have to tell *ProScan* which of the three types it is! When looking up names, you can enter in partial strings or the first few letters and *ProScan* will point you to the closest match.

"*Intelligent Seek*" is especially useful when you get a new magazine or book with frequencies lists. You can key in "new" frequencies as you read them to see if you have them on file (which, if you've been scanning long enough, you probably do). You don't even have to look at *ProScan*'s screen for the results! Three different tones are provided depending on whether *ProScan* finds an exact match, close match or no match (the tones can be turned off if you're allergic to them). If a single tone sounds, you know you already have the frequency on file and can immediately check your description against that in the publication. If you don't have the frequency, you pick a new record location and enter in the new data. If you keep the new records grouped together, you can print a partial list of just the new frequencies and then enter them into your scanner.

Another great feature is to see your data listed in different orders. *ProScan* allows you to order (sort) data by channel, frequency, name, location and type. *ProScan* uses active index files; sorting is not required and look ups take a fraction of a second. Indexing allows you to change orders immediately without waiting for physical sorts to the disk (*diskus interruptus*). And what's better, you don't need menus for this either. Just press the left or right arrow keys to change from one order to the next. The results are immediately visible on screen. You can also print in any one of these orders as well as by selected groups.

The frequency record structure is simple and somewhat universal with particular emphasis on compactness. Each record uses only 75 bytes. Many other programs use double this amount and more. Conversely, I wanted to provide plenty of space for attaching additional notes to each frequency.

Each record is capable of adding approximately 400 lines

of notes. The note pad offers automatic insertion of a time/date stamp each time an entry is made to notes and can be turned on or off. The note pad has additional functions including string search, search and replace, block functions and other word processing features.

Many long hours went into the development of *ProScan*. It has been thoroughly tested and provides error trapping for most events. There are numerous dialogue boxes to assist the user when entering data or using the various functions. It is these type of features that really make the difference.

ProScan sells for \$39.95. For subscribers to the venerable *WSR*, if you order by September 1st, you may purchase *ProScan* for only \$24.95. And for those who will be using the *HB-232 Interface*, I will include a free utility program for converting your *ProScan* frequency file to an *HB-232* compatible *Autoload* file. *ProScan* comes complete with documentation and an easy to use installation program. Requires DOS, hard disk, 640K and works with Epson/IBM or compatible printers. Send check or money order to DataFile, Inc., P.O. Box 20111, Dept. WR, St. Louis, MO., 63123. Please be sure to specify disk size (3.5" or 5/25") and a reference to the World Scanner Report and this article. If you're a skeptic, you can order a demonstration version for \$7.50 which is applicable towards purchase. (NOTE: If you want the *ProScan-to-HB-232* file conversion utility, be sure to request it. The *HB-232* Utility is not available with demo orders.)

In closing, I hope you enjoyed this series of articles. If you have any questions or comments, please drop me a line. I would enjoy hearing from you. 73's till then!

EDITOR'S NOTE: I've known Perry for better than a year now (fine gentleman), and have had some opportunity to play with his *PROSCAN*. Not a bad little file manager! When I first fired it up, I hadn't had my first MSDOS computer for more than a week or two, so you can well imagine my lack of savvy and proficiency, yet I was navigating through *PROSCAN* like a pro after only a few minutes. If you are not a computer & database expert, it could very well be that *PROSCAN* will open a new dimension to scanning for you. If you are going to buy the *HB-232*, *PROSCAN* might smooth over any initial aversion to database management that you might harbor. Mr. Joseph was one of the Beta Testers of the *HB-232* so some of the "look and feel" of the Program is to his credit. Let's hear it from YOU now; drop a note to Perry with your questions and comments about database management. Thank you, Perry, for your excellent introductory series to this increasingly important topic. By all means, please feel invited to continue the discourse. I think we're ready for Databases 102 now! **NOTE:** I recently procured the Grove FCC Database for California! Wow! Am I ever GLAD I'm proficient in database management! If tracking a few hundred frequencies is a chore for you, imagine what 250,000 might be like! *PROSCAN* could very well be a great learning-aid if you're going places in scanning!

THE READERS WRITE.....

From Joanne Haines, CALIF: Some general comments; I am glad you speak your mind, even if you have to step on some toes, I would rather you be honest and to the point than be two-faced and not hurt anyone's feelings in order to keep the subscriptions up or what ever.

In the WSR V2N6, July 1992, "APOLOGIES" I don't think was necessary. But it was nice you had the compassion to do so and still get your point across. I agree with you on this matter 100%.

At this time I am unable to purchase a computer, and have very little knowledge about them as well, so in my case even trying to get a used one is very difficult (not only money wise but, because of lack of good hard knowledge what to look for.) My uses would be for Scanner/SW Log keeping, frequency lists, comments, etc., and I'd use it with my Digital Data Interpreter from CCS and of course, in the future with the HB-232, you are coming out with which I think is just great; everyone should have one! I will, God willing and the creeks don't rise!

Anyway, the way it looks, it will be about two years before I will be able to even think about getting a computer (Darn it!). So at this time the sections (on computers) in the WSR are of little use to me. But I am keeping them, and hopefully in the future they will be a source of pertinent information.

I get a lot from your MODs in the WSR. This at least gives me some options to improve my scanner, even if the money is low at home. I think the *How To Do Scanner Modifications* or *How To Properly Hack Your Scanner*, was just great AND I WISH YOU WOULD HAVE THIS SECTION IN EVERY ISSUE. I am sure we could all benefit from this.

Some things I would like to see, if you make a permanent section out of it, are: When you're hacking on your scanner's circuit board and destroy one of those little flat circuit traces, how can you repair it or replace it with a make-shift job? What are the proper ways to remove, replace, change, add a wire lead to a surface-mounted component?

Also I like your product news and updates. Like when you told us to stock up on Radio Shack's 25-cond cable #278-776, because they are discontinuing it. I did! Thanks!

There are times you get a little too technical for me where you lose me. But not very often, YOU KEEP EVERYTHING SIMPLE AND EASY TO UNDERSTAND. (this is a pain and very hard for you to do! But it is very much appreciated!!! -Joanne

EDITOR'S REPLY: Thank you for the kind words of support and encouragement, Joanne. Normally, I would neither solicit nor print complimentary remarks because it's not ethical to toot one's own horn. I put yours in because

whenever a larger issue is at stake, it's probably best for all Readers to have a look at BOTH sides. Your not being computer oriented and still supportive of computer-related material is one pertinent side of this issue. You make a good case for "foresight" in anticipating the day when you WILL have a computer. That's the spirit I hope most other computer-less Readers will have. By the same token, we're not going to deal exclusively with computers. They're here to stay, though, and now are solidly entrenched into RADIO, and we have to keep pace.

I'm not a great adviser on computers (yet), but my experiences might benefit you and others, so let me address those concerns. Mark my words when I said I got an XT/clone for \$100 and a 40-Mb Hard Drive for another \$100; total investment: \$200. Hardly out of range of those who can afford a \$400 scanner and other supporting toys! For now, let me give a rule or two of thumb to go by: AVOID, at all costs, even if almost FREE, the original IBM PC and PCjr. These are antiques and not worth your hard-earned cash. If the price is right, there is nothing wrong with the XT/clone models, even though these, too, are antiquated now. An XT will nicely control your PRO-2004/5/6 via the HB-232 Interface not to mention CCS' Digital Data Interpreter. If you go for an XT/clone, I would strongly urge you to settle for no less than 640-k of RAM memory; at least one floppy disk drive (preferably two), and not less than a 30-Mb Hard Drive. It should also have at least one printer port and one serial port. It should be equipped with MS-DOS 3.3 or higher. At the XT level, I have no preference for color or monochrome, especially if you're controlling radio equipment. Understand that XT/clones are not great for productivity now, and I do NOT recommend 'em for anything except dedicated control of radio and other equipment.

The best deals on the used market today appear to be the AT/clone class, where again I would recommend a minimum of 640-k of RAM (1-Mb preferred) along with one or two floppy disk drives; a 40-Mb Hard Drive, and preferably a VGA or SVGA color monitor. It should also have at least two serial ports and a printer port and be configured with MS-DOS 3.3 or higher (5.0 is current.) Frankly, even the AT/clone class has now become antiquated. It is said that the 386SX/16 class is the entry-level MS-DOS computer, and indeed, full-blown 386SX systems can be had for under \$1000. Prices are dropping like flies in a poison cloud. In fact, you can hardly find new AT/clones anymore. They're disappearing fast. So used ones should become almost as affordable as my clunker XT soon.

Next subject matter: *How To Properly Hack Your Scanner* might be best driven by specific questions for a while, since it is hard for me to guess at what people know and don't know, but since you asked.....

REPAIRING DAMAGED CIRCUIT TRACES: Inevitably, this happens and most of the time, it's no big deal. The repair can be tedious, depending on location of the trace, so settle in with some patience and the right tools and materials and all will be well. When you have

determined the location of a damaged circuit trace, follow it off to either side of the break and find two good spots where you can insert a sharp tool such as an Xacto Knife. Gently scrape the surface lacquer off the traces on either side of the break at accessible locations. Scrape until the copper shows bright and shiny for a length of at least 1/8" to 1/4". Tin your soldering pencil (fine tip, please) and then apply a bit of fresh solder to the shiny copper traces. Ensure a nice little blob of solder on each trace. Then cut a tiny wire, preferably a solid, single strand 26-30ga insulated wire to fit between the solder blobs on the traces. Strip a bit of insulation from each end of the wire and tin those stripped ends with solder. Then solder one end of the wire to one solder blob and the other end to the other solder blob. Job done!

WORKING WITH SURFACE MOUNT COMPONENTS: We can only touch upon this subject now with more to come later, perhaps. If you only need to solder a wire to one end of a surface mount component, no sweat: tin your soldering pencil tip, and then apply a bit of fresh solder to the desired solder pad of the component. In effect, you'll just freshen the solder on the pad; nothing more. Then strip the end of your wire and tin it with fresh solder. Then solder that wire end to the end of the surface mount component. Job done.

REMOVING SURFACE MOUNT COMPONENTS: well, hell, there's no good way to do it without a very expensive desoldering tool. So, just crush the component with diagonal cutting pliers, and then desolder the broken ends from each pad. Replacing surface mount devices is easier, if you have them, but you'll need tweezers and a steady hand to position them properly before soldering one end. In most cases, surface mount components can be replaced by standard components if you pay attention to lead dress and positioning of the component.

SURFACE MOUNT CHIPS are a real booger-bear sometimes, especially the stock memory chips in the PRO-2004/5/6, PRO-2022/2021, PRO-37/34/32, PRO-2026, BC-760/950XLT, and BC-590/600XLT. Shooey! Many pro's like to just snip them out first and then desolder the cut lead ends from the pads. This is the safest procedure for the printed circuit board, but of course, the chip is about as useful as shoulders on a snake after that. If you're a Klutz, maybe that's the best way to remove a SM chip. I can't stand to destroy anything, though, so I use desoldering wick to first absorb all excess solder from each pin/pad. I do two or three applications of the wick in brief periods. Then I slip a stout hat pin (the kind with a "pearl" on one end) under one row of pins and exert a gentle upward pressure as I run the soldering pencil down the row of pads. This process makes the pins pop free kind of like a row of dominoes falling. Repeat the process on the other row and put the chip away in a safe place. Use desoldering wick to clean up the vacant pads. This technique CAN result in damaged pads and traces if you're not careful, though. There's a fine line between TOO MUCH heat and not enough; TOO MUCH force and not

enough. I boogered up a few pads & traces in my earlier days, though I can't recollect damaging any in the last couple of years. Nowadays, I can pop a 24-pin SMD chip slicker than snake snot in less than 5-mins with no damage. But I've done a couple hundred in getting that good at it. Take your choice of these two methods, but in either one, exercise GREAT PATIENCE and don't get rattled or hurried. Patience is the KEY in every area of scanner hacking! Take your time and be sure of the correctness of every step you take! Good questions!

Here's an off-the-wall note from a disgruntled inquirer that I want to share with you for the sake of involved principles on both sides:

FROM P.S. Omaha, NE: "I was a little surprised today to receive what I consider a very rude letter from you, an ex-CEO and engineer, to me who could be a prospective customer, just because I failed to read some of the literature you sent about sending a SASB and extra stamp with any requests. I'm really sorry about that. As a retired engineer, I've made mistakes before and I'm very sure that I'll make others. Your short reply could have, for the same money, answered my questions and then mentioned that I should have sent a SASB and extra stamp. I would have placed a couple of stamps in the mail to you immediately. I'm sure that my original questions were trashed so for now I'll sit back and see if you'll take the time to respond. Just in case my questions weren't trashed, I have enclosed a SASB and 2 extra stamps. If you don't reply, you'll have 3 stamps to use elsewhere. /P.S."

EDITOR'S REPLY: Your questions will be answered to the best of my ability by private correspondence, but the principles will be addressed here. You make a good point from your point of view, to be sure. I don't argue your perspective. But you need to see the other side of the fence before finalizing your judgment. First, our Policy of a SASE and extra stamp for personal replies to hobby-related and non-business inquiries is based on NEED and certainly not profit. I receive anywhere from five to twenty hobby inquiries a day, the cost of which can range to well over \$10 a day, depending. The time to deal with each piece of correspondence ranges from ten minutes, minimum, to a half-hour or more. Go figure. Before YOU retired, could you afford 10-hrs/day for correspondence? It can be perceived as rude of you to expect me to drop what I am doing; spend my personal funds and time to cater to your leisure pursuit. Your inquiry was not business related and there was nothing to suggest that you were a potential customer. It is a generally accepted courtesy to defray costs of reply when asking for free information. You failed to render that courtesy at the onset; why is it incumbent on me to include your inquiry in the stack to be answered when I can hardly afford the time to reply to those who are courteous? In the past, I would normally put inquiries like yours at the bottom of the stack, but the volume of correspondence has grown to the point where the bottom is never reached. So we now generate form letters in lieu of ignoring such inquiries out right, and I rarely see them. There was no intended rudeness on our part; it would have been ruder to have ignored you. My staff can quickly stuff form

letters into envelopes, but only I can answer technical questions. But I challenge you to see HOW MANY replies you get from other authors, publishers and people like me who have more to do than they can handle. Bets are that over half will ignore you and most of the other half will take several weeks or months to reply. In closing, please consider that in two years, I have well over 3,000 hobby inquiries on file, every one of which has received a reply. At first, I answered all inquiries, regardless; but the load increased to where the SASE + 1 Policy had to be etched into stone. I don't see every letter anymore UNLESS they qualify first, and then require my personal attention. I see YOUR point well enough, but am kind of powerless to do anything about it. Do YOU see MY point and can you do something about it? I hope the resolution is self-evident.

Folks, I brought this matter out before you primarily because a preponderance of my correspondence glows with compliments and appreciation for what I do. Trouble is, is that there is a limit to what I can do and still make a living; pay the rent and feed the kids. Tough world, but I wanted you to know the score. We're not rude.

PRODUCT ANNOUNCEMENTS

Comes now an ingenious modification from Mark Persson, (Mr. Digital) who designed the KeyBoard Memory Block Controller (MOD-28) that appeared in Vol-2 of my SCANNER MODIFICATION HANDBK. The LINKALL is the next evolutionary step in making Extended Memory modifications look and act as if they were "factory designed and built".

PRO 2004,5,6 OWNERS WITH EXTENDED MEMORY

Take automatic control of your memory with the LINKALL memory control module. Automatically increments bloc address to next selected bloc and skips over unselected blocs. Or scan all 6400 chans. hands off LED's to indicate bloc number and fifth for programming. Also includes the 2 button KMBC function. Module does NOT include 32K memory chip. Easy install. Send SASE for more info. 6 month lim. warr. Price \$84.95 including shipping.

M. Persson
1369 Lombardy Blvd.
Bay Shore, NY 11706

The LINKALL EXTENDED MEMORY CONTROLLER was developed for PRO-2004/5/6 scanners that have been modified with the 6,400-ch Extended Memory MOD-16 in Vol-1 of the Scanner Modification Handbook. The LINKALL controls the four memory address lines that are otherwise controlled by DIP switches or the MOD-28 KMBC circuit that appeared in Vol-2 of the SCANNER MOD HANDBOOK. The LINKALL has the KMBC function but more importantly, it auto-increments the Block address to selected Blocks of your choosing! For example, if you program the LINKALL to Autoscan only Blocks 00, 01 and 02 the following sequence will occur in the Autoscan mode of operation:

As the scanner passes ch-400 at the end of Block 00, the LINKALL selects Block 01 and scanning starts at Ch-1. At Ch-400 of Block 01, the LINKALL selects Block 02, Ch-1. At Ch-400 of Block 02, the LINKALL then cycles back to Block 00, Ch-1 to repeat the process. This Block 00-01-02 loop will repeat until you stop the Autoscan process. Normal scanner functions are not disrupted; the Extended Memory acts more as if it came with the scanner!!!

Programming the LINKALL is EASY and it scans up to the full 6,400 channels from 1 to 16 selected Blocks of memory, hands off, if desired. LINKALL always scans in Block-ascending order. For example, if you program a Block 13-07-02-05 loop, Autoscan of the programmed Blocks will be: 02-05-07-13-02-05-07-13, etc. After the module is programmed, memory holds the configuration of the 16-Blocks to be scanned or ignored. Reprogramming is not necessary at power up! The onboard memory battery in the scanner preserves the LINKALL's memory when the scanner is off or unplugged. Block ID is visible during operation from four T-1 size LED's mounted in the front panel which display the binary count sequence. A 5th LED is used in the program mode to indicate if a Block is to be selected or ignored (On for programmed, off for ignore). The fifth LED remains ON in the Autoscan mode and off in the manual Block increment mode. Three stock Keyboard keys on the scanner are used to increment the Block address and for selecting the Blocks to be scanned. Two switches are mounted on the rear chassis: one resets the Block address to Block 00 or the home Block. The other switch is used to enter the three operational modes of the LINKALL (PROGRAM, AUTOSCAN & MANUAL BLOC INCREMENT). Once installed, operation is easy and becomes as routine as turning the scanner on. The module has 22 wires to be hooked up and if you previously installed the KMBC function only one more LED need be installed in the front panel. The fully assembled LINKALL module is ready for installation but does not include the five LED's or the two switches, which are available at Radio Shack and electronic supply stores. You might even have the parts in your junkbox. The unit is powered from the scanner and is completely contained inside the radio.

ANOTHER NEAT PRODUCT

ATTENTION HANDHELD RADIO OPERATORS: Scannists, hams, CB'ers, etc, will take delight in "The Pouch", a tough, low priced carrying case for portable radios, cellular phones, pagers, scanners and more! "The Pouch" comes in a variety of styles & sizes to fit most handheld radios. "The Pouches" are made of 1/4"-thick neoprene, bound to an attractive skin, essentially scuba suit material, designed so it won't fray, let alone come apart, even under water. There is an extremely sturdy belt loop on the back made of 2" webbing and a restraining strap made of the same material, secured on the front with a large Velcro tab. It would seem that "The Pouch" can protect a radio from damage by moderate shock, scrapes & vibration. For more info on "The Pouch", contact Phil Richardson, "The Pouch", 535 Suffolk Dr, Tucson, AZ 85704

THE REALISTIC PRO-43 IS HERE!

EDITOR's NOTE: The following, relative to the new PRO-43 Handheld Scanner from Radio Shack, was passed to me from Tim Dowdle who picked it up from around the BBS Networks:

"I just bought a PRO-43 in an RS store south of downtown Los Angeles today. It is very small, about the size of 2 cigarette packs on top of each other, but a little more in depth. It has 200 channels, am/fm switch, 25 channels per second SCAN, 50 steps/sec on SEARCH. No speed button. I tried a 280 MHz-am freq which worked as well as my PRO-2006 with the same antenna. The light isn't worth much. The display is across the top; then the speaker; then the keypad. The buttons are small about the size of a pencil eraser, some are smaller (the only problem I have found) otherwise it is just as good as the PRO-37, or better. No time to check intermod. Signals come in clear and some come in better than my AR1000."

The information to follow comes from the PRO-43 Manual:

Coverage & Search Step Increments

30 - 50 MHz	@ 5 KHz
118 - 137 MHz	@ 25 KHz
137 - 174 MHz	@ 5 KHz
220 - 225 MHz	@ 5 KHz
225 - 400 MHz	@ 12.5 KHz
400 - 512 MHz	@ 12.5 KHz
806 - 1000 MHz	@ 12.5kHz (LESS CELLULAR)

IF Freq: 1st-608.005-611.2 MHz; 2nd-48.5 MHz; 3rd-455 KHz
Size: 5 3/4" x 2 3/4" x 1 5/8"
Speed: SCAN 25 ch/sec; SEARCH 50 cps
Mode: AM & NFM; selectable
Programmable Channels: 200; 20 x 10 Banks
Monitor Channels: 10
Price: \$274.95 at MaryMac Industries
(800) 231-3680; ask for Bruce

Bill, please re-post as you see fit. -Tim-

Thanks for the scoop, Tim! I have since learned a little more about the new PRO-43: it is Cellular capable with 30 KHz Search Steps after a little work, probably on the same level as restoring cellular in the PRO-34/37, except you have to crush or remove a surface-mount diode instead of clipping a lead. The cellular diode, D-4, is located on the BOTTOM board of the PRO-43. Crush or remove it to restore cellular. Now I hear it said that if you add a diode to the empty spots for D-3, you'll gain 54-88 MHz. Two people have sworn to this, but you never know, of course. In the PRO-34/37, if you did this, you'd lose 30-54 MHz, so I dunno at this time. I have a Service Manual for the PRO-43 on back order from Tandy, but it's not been released yet. I'll have more to discuss after a thorough review of the manual and perhaps looking inside one if I get a chance.

Right off, the PRO-43 "looks" like a mini PRO-2006, but

don't count on it! It does have "triple conversion" to eliminate image interference for all practical purposes. And it has the Military Aero Band with selectable Mode for the required AM. I don't know about AGC which would reduce or minimize intermod and overload. Note that the PRO-43 does not have 88-108 MHz nor WFM mode. Neither are the SEARCH increments selectable like in the PRO-2004/5/6, nor is there a LockOut Review. Nothing has been said about a "DIRECT SEARCH" function like that in the PRO-2004/5/6 and PRO-34/37, but it's a fair bet that it's there. There are conflicting reports on the manufacturer of the PRO-43, but the most reliable says it's GRE-Japan, same maker of the PRO-2004/5/6 & PRO-34/37. It's also said that the PRO-43 requires six "AA" cells, but which are packaged more compactly than the PRO-34/37. Given its apparent profusion of surface-mount components and shrink-wrapped design, I doubt if the PRO-43 is going to be very modifiable. So the word to the wise is that if you want one, be content pretty much with what you get; else don't get it.

On the whole and in summary, it looks like the PRO-43 is a natural evolution of the PRO-34/37 to bring it much closer to the legendary PRO-2006 in a hand held package. I think one cannot go wrong with this unit, especially at the discounted price offered by *MaryMac Industries*. Let's put it this way: if you've been lusting after a PRO-37, then the PRO-43 will meet your expectations and more. If it's a real PRO-2006 in a hand held package that you're waiting for, then don't hold your breath; you might want to wait another year or two. More later...

MORE FEEDBACK + TIPS FROM THE READERS

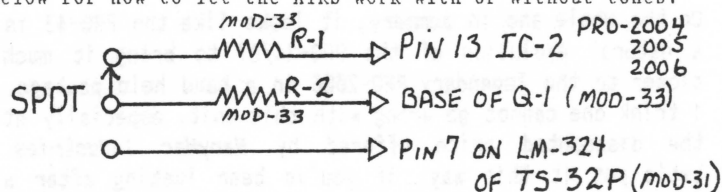
Dear Mr. Cheek: I too agree with Mr. Morris that there has been too much emphasis focused on computers in the WORLD SCANNER REPORT. I bet many readers can't afford a computer and those that can may question how worthwhile such a purchase would turn out to be. After all, a poll once found that 46% of PC users seldom use them. In my small town there are not thousands of stations that could benefit from computer management. I was glad to see Mr. Morris' letter, as it led me to write these few votes.

Sincerely, Danny Buntin, Stillwater, Oklahoma

EDITOR's REPLY: Dear Mr. Buntin: Hmmm, I dunno about polls because they're always slanted. But if you have a VCR, you're using a computer; if you have any sort of a modern scanner, you're using a computer; if you have a reasonably late automobile, you're using a computer. There might be a dozen other ways you're using computers and not realizing it. All we're doing here is talking about using ANOTHER one. Also, I don't agree that "most" WSR readers might not be able to afford a PC! For one thing, the WSR is not geared to the bargain-basement scanner owner. Over 95% of our readers have something in the BC-760/950XLT class or higher. These are \$200 and up and, mind you, I did a lot of the HB-232's developmental work on a funky clunker of a 1984 XT/clone that cost me \$100 plus another \$100 for the 40-Mb hard drive; a lot

less than typical scanner costs these days! I don't mean to speak for you and Mr. Morris, but frankly I think most resistance to computers now is based upon fear of the new and clinging to "old school" ways of thinking. I respect that; hell, it took me almost ten years to overcome my fears of MS-DOS and IBM/clones. The bottom line is that the WSR cannot cater to the "old school". We will include something for it, but we must be avant-garde and ever on the move toward the leading edge of technology. Let me remind you that in the 1960's & 70's, the "old school" still clung to vacuum tube technology, me included, like stink clings to manure! But solid-state overwhelmingly won. Imagine a vacuum tube newsletter trying to survive today! History is about to repeat itself.....73/Bill

Jack Wilks, St. Louis, MO says: A little trick I found for the Automatic Tape Recorder Switch (MOD-33) and the CTCSS Decoder, MOD-31: You said to hook MOD-33's Q-1 input to Pin 13 of the NFM chip. That works fine and dandy if you don't have a CTCSS decoder, but I do. See below for how to let the ATRS work with or without tones:



I found that if you remove R-1 (47-k) from MOD-33 and solder Q-1's input wire to Pin 7 of the OP AMP (LM324N) on the TS32P, the tape will record only when the correct tone is present. Since I have my tone decoder in an external box that's connected to the scanner with a 9-cond cable and a 9 pin D-Sub connector. I had to devote a fifth wire to that pin 7 (but who cares, 4 spare wires are left). By the way, this pin 7 rises to 6 or 7 volts when the correct tone is present, and is 0 volts with no tone, just like Pin 13 on the NFM chip in the scanner.

FROM BERT BURLAND; Sanford, Texas: Hi Doc: Got some tips for you and my fellow WSR Readers: About MOD-41, the speed-up for the BC-200 with the 800 KHz Ceramic Resonator: this sped things up, but about half of the LCD memory bank display bars would not blink as the bank was scanned or if the squelch opened, the display would not change to the one bar to show which was active. Only upon pushing the manual button would the display reveal the bank. My remedy is a 640 KHz Ceramic Resonator, DigiKey part #P9946. This still renders a big jump in performance with no ill effects. Digi-Key was all you had said, Doc; they are professional in every respect and fast shippers, which counts for a lot to one who is somewhat in the middle of no-where. I found a great source for long-play cassettes - Computer Business Svcs, Inc., CBS Plaza, Sheridan, IN 46069, (317)-758-4414. They invite folks to request info about their megabuck computer business system and they will include two **very long-play cassettes** for you to listen to. The clear stick-on rubber feet from Radio Shack, number 64-2365 are great for the keyboard of the 2004. They act like little magnifying lenses and give a much better feel. That's it for now, Doc. See ya.

FROM GORDY OLSON, FARGO, ND: I bought and enjoyed both your SCANNER MODIFICATION HANDBOOKS, and did some mods on a Realistic PRO-2010 that I would like to share with you. I have also developed an urge (obsession) with the PRO-2004/5/6, and plan on buying a 2006 soon.

PRO-2010 Mods: SPEEDUP: I successfully changed the 4 MHz crystal in my 2010 to a 6MHz crystal (bought for a mere \$1.50 at my local Jim-Pak dealer.) The original crystal yielded a mere 7-ch/sec (not the advertised 8/sec) and after the mod, slightly over 12 chan/sec was realized. I originally tried a 10 MHz crystal, but the scan went into warp speed, and the radio section would not work at all. I would guess a crystal cut for 7 or 8 MHz might work, but could be pushing it.

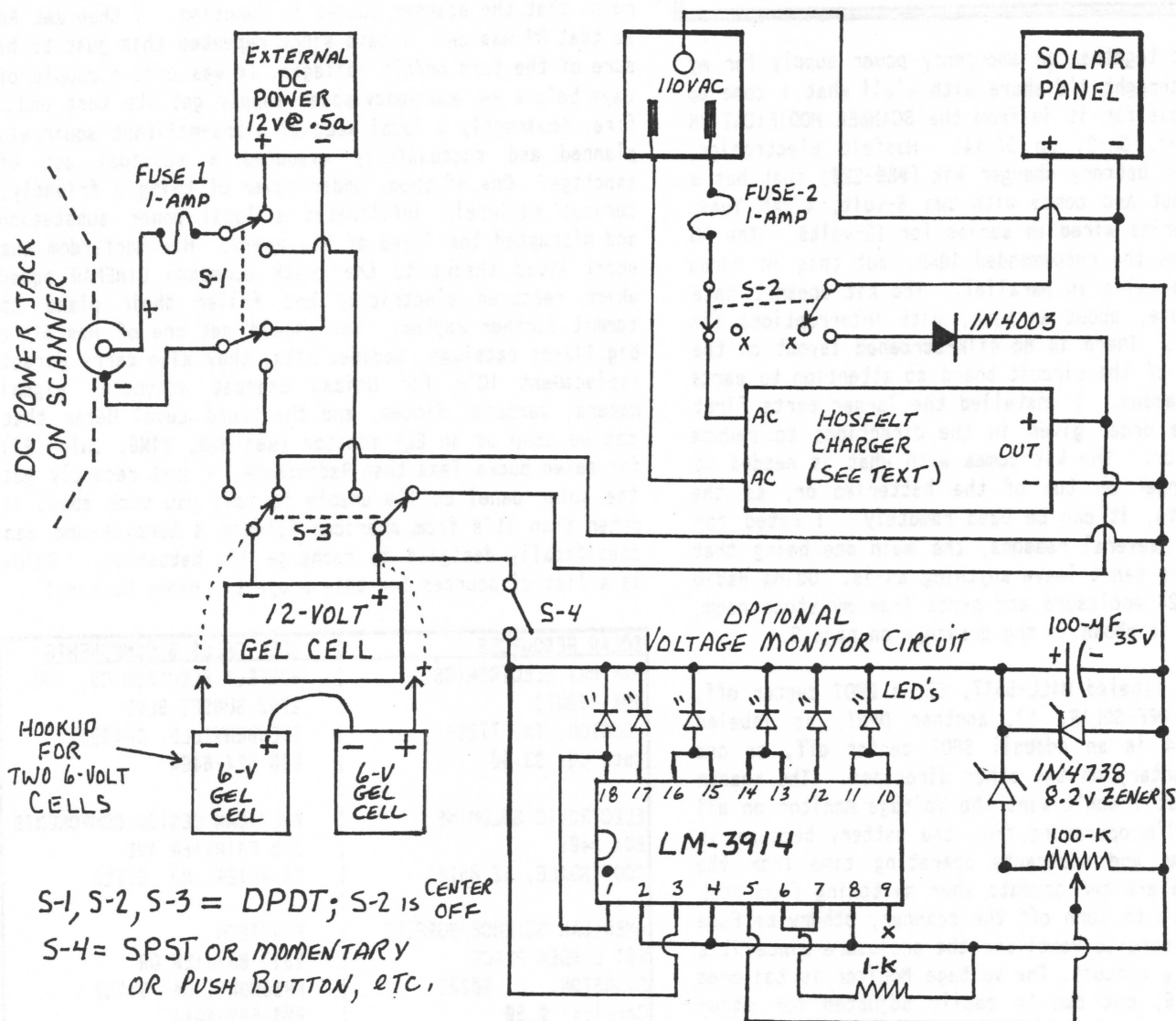
EVENT COUNTER: I constructed the Event Counter per your instructions in MOD-30. I found that in the 2010, pin 13 of IC 102 (on the RF board) carries the necessary signal to trip the counter. I also found a handy connection point in the jumper wire (Yellow) that runs from Pin 13 to Q126. I simply tapped in a 470-k resistor out to a jack, connected the rest up as shown in your book, and everything worked; the first time even!

PRO-2004/5/6 IDEA: Regarding selection of memory banks for Extended Memory: rather than use DIP switches or keyboard mods, I found a 16 pos BCD coded subminiature switch that may be useful. It is the channel selector switch for a **Motorola Sabre** portable radio (a walkie-talkie). It can be ordered through any local Motorola dealer for about \$15-20. They can also order (for some pocket change) a spiffy knob for the radio, and the adhesive-backed bezel showing the 16 positions (this bezel is for the entire top of the portable, showing volume knob markings, and the switch settings for the "Securenet" feature.) It should be simple to connect the BCD coded switch to a BCD-Binary converter (like the 74LS42?), then hook it right up to the Memory Board. This is one of the mods I plan on doing when I get enough saved up for a 2006.

I don't plan on doing much more with the 2010, but do have the manual if someone else has any problems. One mod I would be interested in is if the channel spacing when searching could be changed from 12.5 KHz in the 300-512 MHz range to 30 KHz, or even 15 KHz, so I could better use the GRE Superconverter 9001. I am not going to get too hung up on this, since MOD-1 on the 2006 I plan on buying would take care of the problem. That's about it for now. Oh, and by the way, if any of this material is of use to you, feel free to use or reproduce it as you see fit. Sincerely, Gordy Olson; Fargo, ND

EDITOR'S COMMENT: Step-increment, an internal function of the CPU, can't be hacked. **NOTE:** a franchise Radio Shack Dealer down in Katy, Texas sells, Realistic scanners for **FAR BELOW RETAIL COST**; and they're honorable folks. Radio Shack's standard warranty applies to their merchandise and they ship **QUICK!** Contact **MaryMac Industries** (ask for Bruce) (800) 231-3680. Typical PRO-2006 cost is \$329.00.

EMERGENCY 12-VOLT GEL-CELL RECHARGER



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V2N7

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Describe your technical abilities & interests here

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OTHER PRODUCTS AVAILABLE

HOBBY RADIO BUYER'S DIRECTORY \$14.95 ppd surf

SCANNER MOD HNOBK, Vol-1: \$17.95 + \$3.00 S&H

SCANNER MOD HNOBK, Vol-2: \$17.95 + \$3.00 S&H

HB-232 Interface Kit: \$169.95 + \$5 S&H; Foreign \$10 S&H

* Canada US\$4 S&H; Other Foreign US\$5 S&H; extra for Air Mail

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12-VOLT GEL CELL CHARGER

By Sgt. Ludicrous, Electronics Enthusiast

I recently put together an emergency power supply for my PRO-2006 and thought I'd share with y'all what I came up with. The basis for it is from the SCANNER MODIFICATION HANDBOOK, Vol-1, Ch-2, pp 37-44. Hosfelt Electronics, Inc., has a 12v battery charger kit (#80-220) that has a regulated output and comes with two 6-volt, 4.2Ah Yuasa gel cell batteries wired in series for 12-volts. The Ah rating is below the recommended 10Ah, but this is cured by adding more cells in parallel. The kit doesn't take long to assemble, about an hour, with interruptions (in my case, kids). There is no silk-screened layout on the component side of the circuit board so attention to parts placement is needed. I installed the larger parts first instead of the order given in the directions to reduce chances of error. The kit comes with what is needed to mount the charger on top of the batteries or, as the directions state, it can be used remotely. I opted for the latter for several reasons, the main one being that I'm a hacker and can't leave anything as-is. Using Radio Shack's #270-224 enclosure and parts from my stock room, I came to what is shown in the drawings on page 9.

S1, a DPDT, is labeled WALL-BATT, S2, a DPDT center off, is labeled AC-OFF-SOLAR, S3, another DPDT, is labeled RUN-CHARGE. S4 is an oddball SPDT center off, on one direction, momentary on the other direction. The reason for this is that I don't want the Voltage Monitor on all the time when I'm operating from the battery because it eats about 20mA and subtracts operating time from the scanner. There are two caveats when switching from WALL to BATT: be sure to turn off the scanner, otherwise Fuse 1 may blow; be sure to ventilate the enclosure since it's a heat producing circuit. The Voltage Monitor is tailored for my PRO-2006, but can be easily adjusted for other things that operate from 12 volts. As few as two LEDs and as many as ten can be used. To align the V-Monitor,

with my PRO-2006, I first charged the gel cells and then used them on the receiver until they ran down to the point that the scanner ceased to function. I then set Rs so that D1 was on. I have since repeated this just to be sure of the turn on/off voltages. It was only a couple of days before my emergency power supply got its test under fire. Apparently a local sect of ultra-militant squirrels planned and successfully executed a suicidal act of sabotage. One of them, under cover of being a friendly, curious squirrel, infiltrated a local power substation and disrupted the lives of his enemy. His martyrdom was short lived thanks to the crack commando LINEMAN squad which restored electricity and foiled their plans to commit further mayhem. You should get one of Hosfelt's big 112-pg catalogs. Besides kits, they also carry direct replacement IC's for Uniden Bearcat scanners, signal meters, varactor diodes, and the Sound Level Meter that can be used as an ELF monitor (see WSR, VIN6, July '91) for seven bucks less than RadioShack. I just recently got the solar panel so I'm unable to tell you much about it other than it's from American Science & Surplus and was specifically designed to recharge 12v batteries. Below is a list of sources for this project. Happy Hacking!

SOLAR RESOURCES	GELL CELLS & COMPONENTS
PAK RAT ELECTRONICS BOX 690073 HOUSTON, TX 77269 Catalog: \$3.00	HOSFELT ELECTRONICS, INC. 2700 SUNSET BLVD STEUBENVILLE, OH 43952 800-524-6464
ELECTRONIC GOLDMINE BOX 5408 SCOTTSDALE, AZ 85261	AMERICAN DESIGN COMPONENTS 815 FAIRVIEW AVE FAIRVIEW, NJ 07022
AMERICAN SCIENCE/SURPLUS 601 LINDEN PLACE EVANSTON, IL 60202 Catalog: \$.50	EASYTECH 2917 BAYVIEW DR FREEMONT, CA 94538 800-582-4044

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- + Repairing Damaged Circuit Traces
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